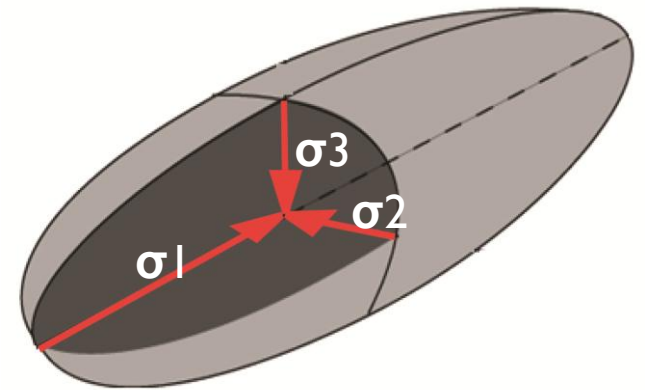
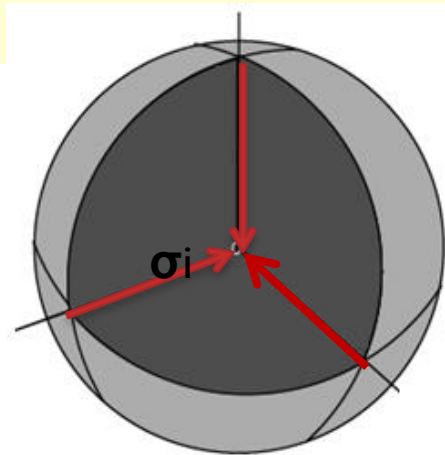
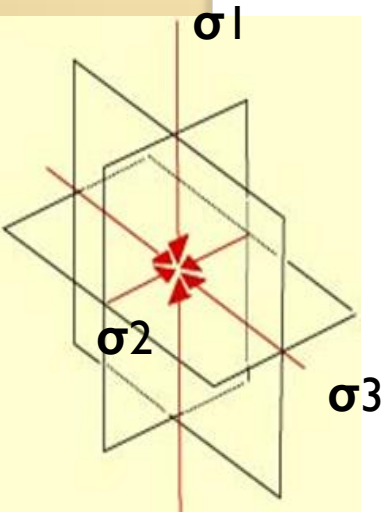
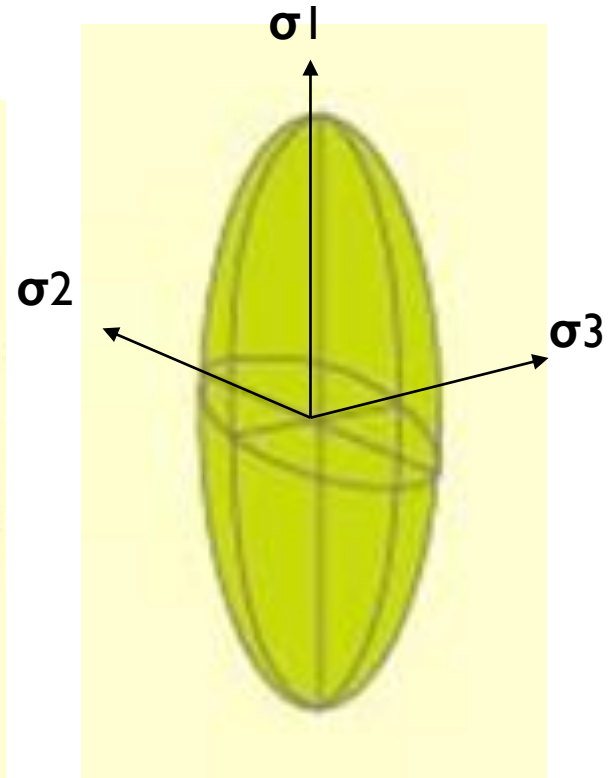
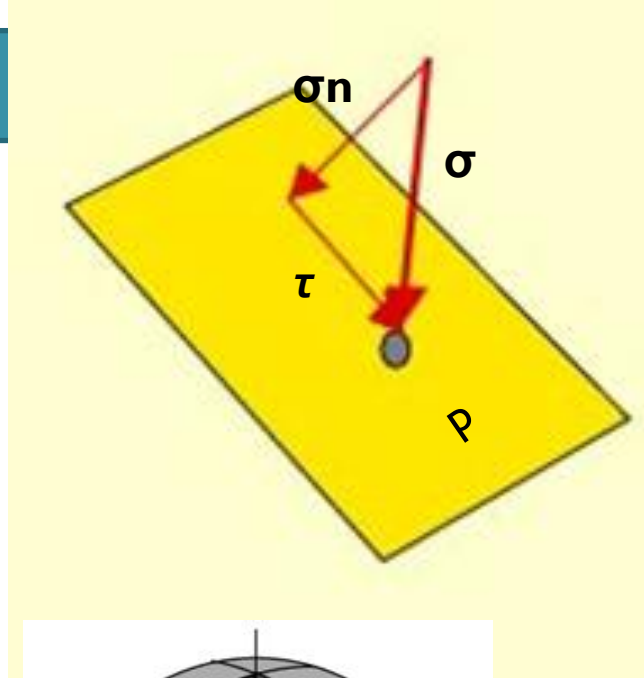
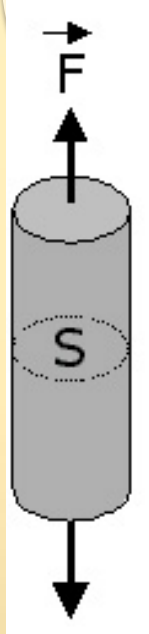
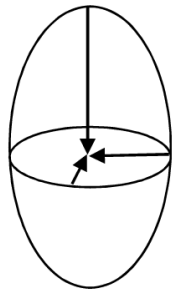


I. Notions de contrainte (stress)

$$\sigma = F / S$$

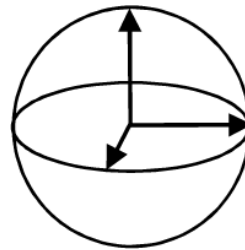


CONTRAINTE EFFECTIVE =



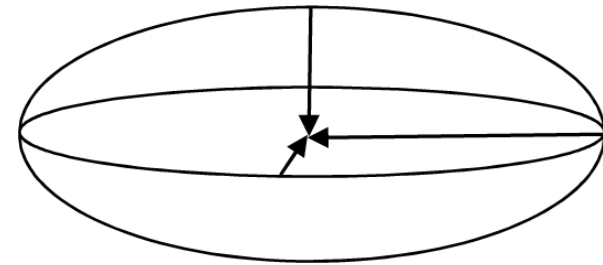
CONTRAINTE
LITHOSTATIQUE

+



PRESSION DE PORES

+



CONTRAINTE
REGIONALE
TECTONIQUE

Forces de volume

Forces aux limites

II. Relations contrainte-déformation

Notions de Rhéologie

la rhéologie est l'étude des relations entre **contrainte** et **déformation**.

rheo : couler; logos : étude



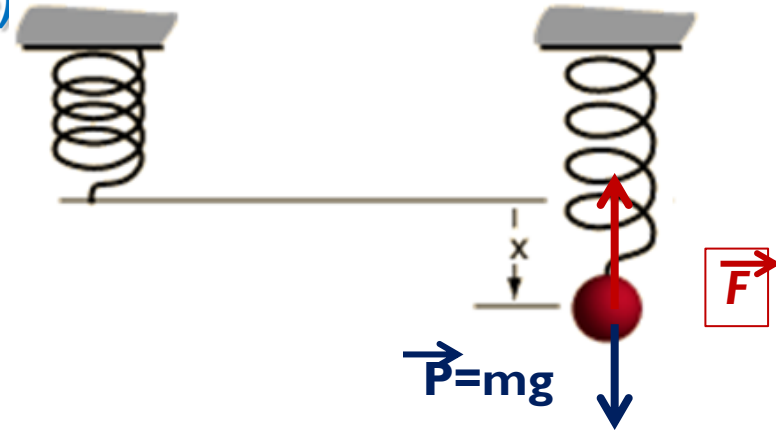
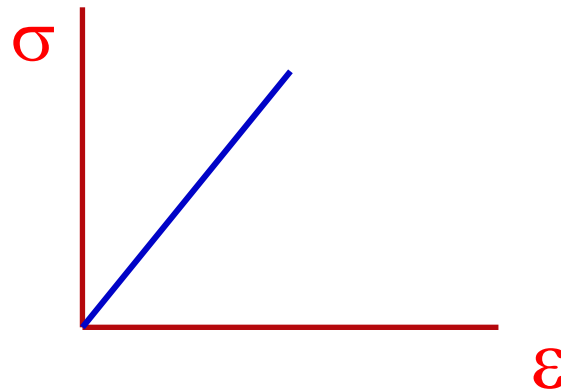
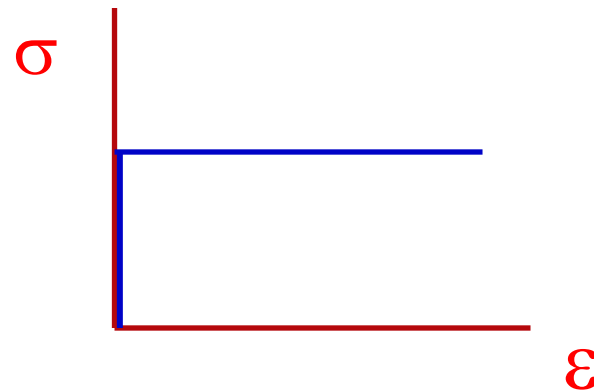
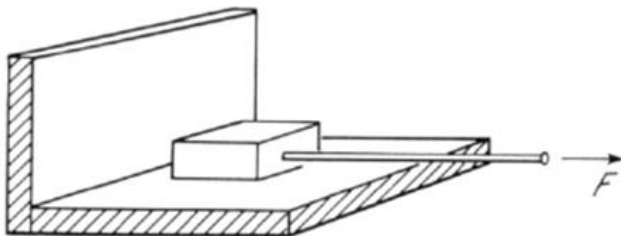
Comportement rhéologique d'un matériel dépend de:

- Loi de comportement intrinsèque à chaque matériau
- dépend également de beaucoup de paramètres (T° , temps, fluides, ect)

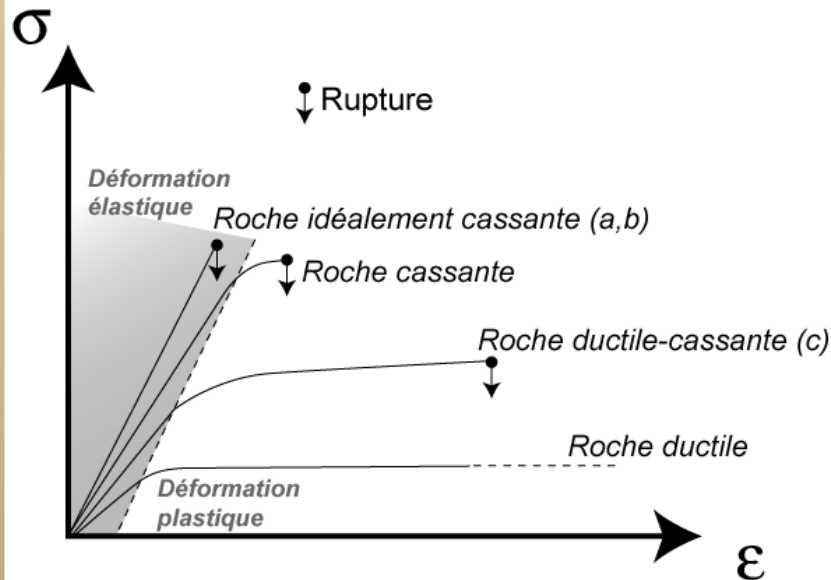
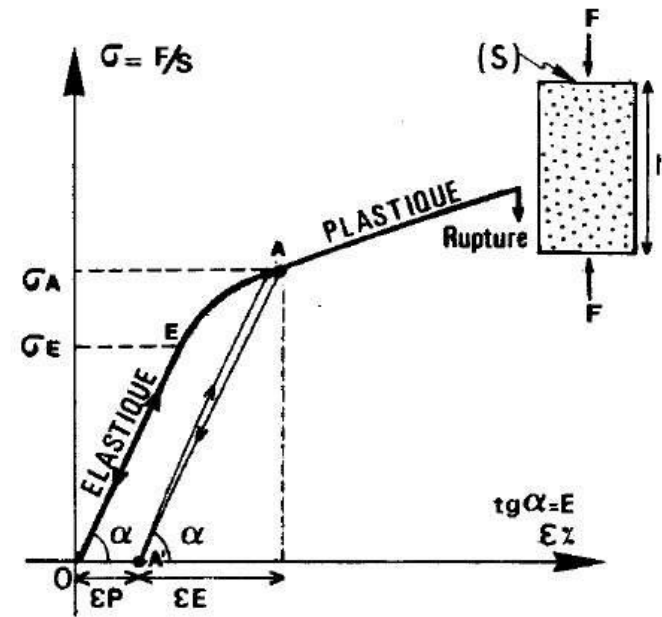
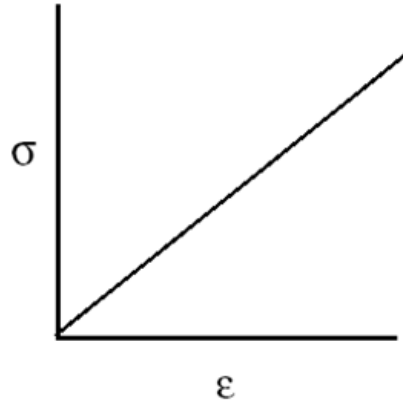
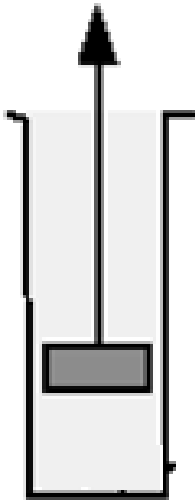
Comportement élastique (Solide de Hooke)

Loi de Hooke:

$$\vec{F} = -Kx$$

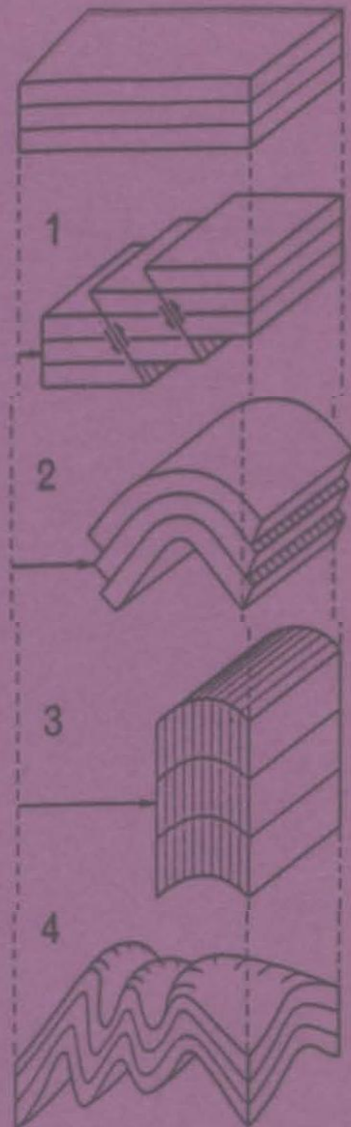
 K : constante de raideur**Comportement plastique (corps de Saint Venant)**

Comportement visqueux (Liquide de Newton)

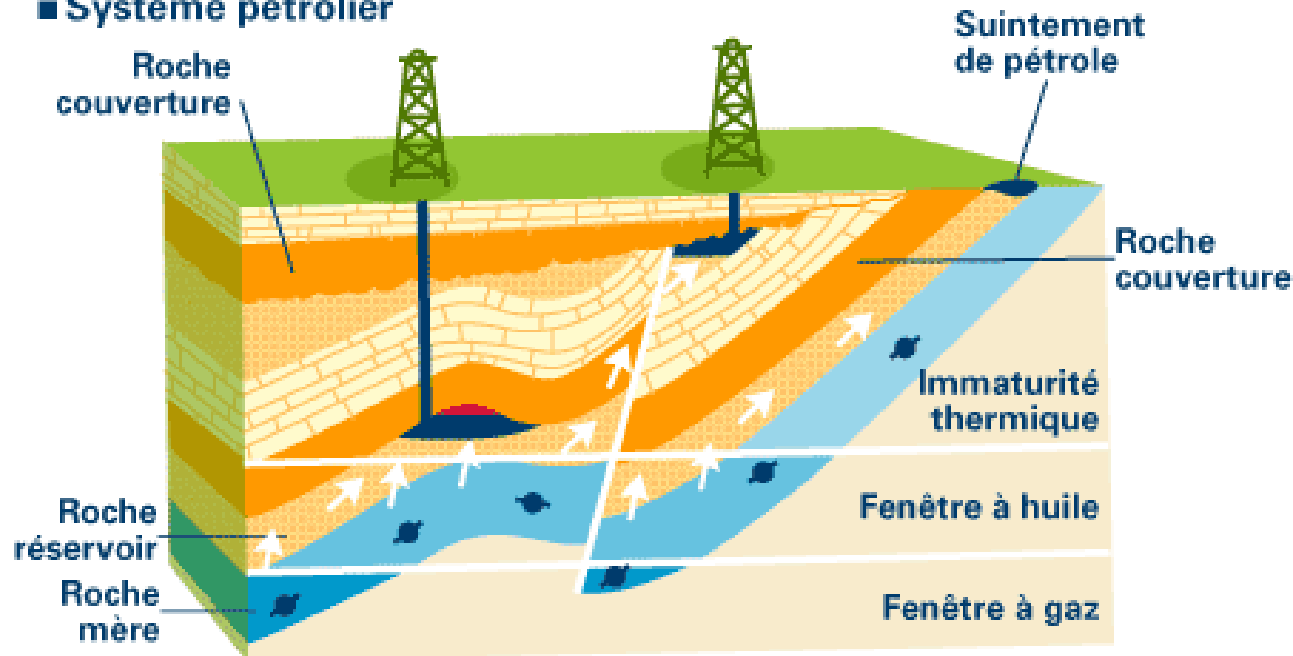


II- Structures tectoniques des domaines ductiles

II-1) Les plis

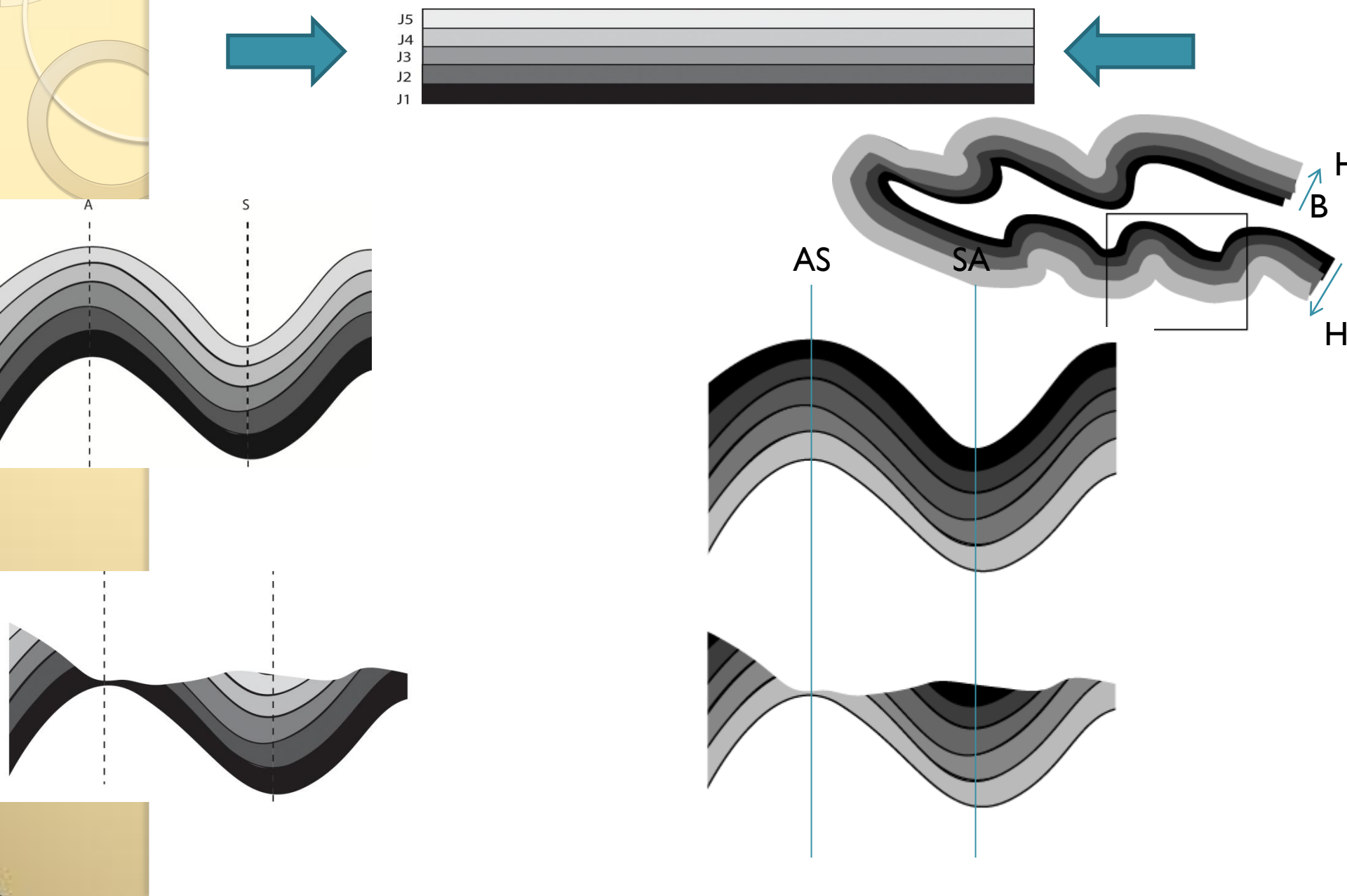


■ Système pétrolier



II- Structures tectoniques des domaines ductiles

II-1) Les plis

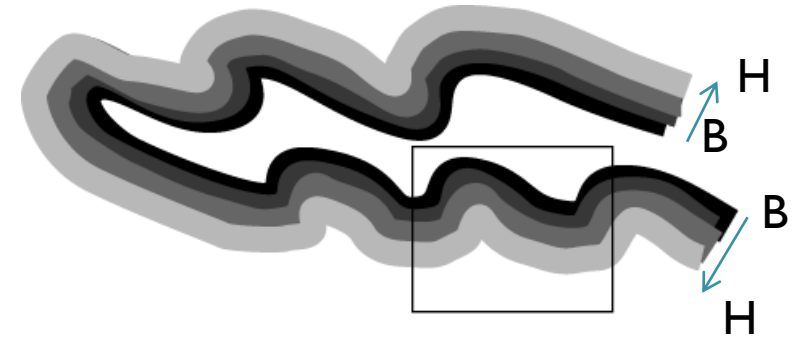
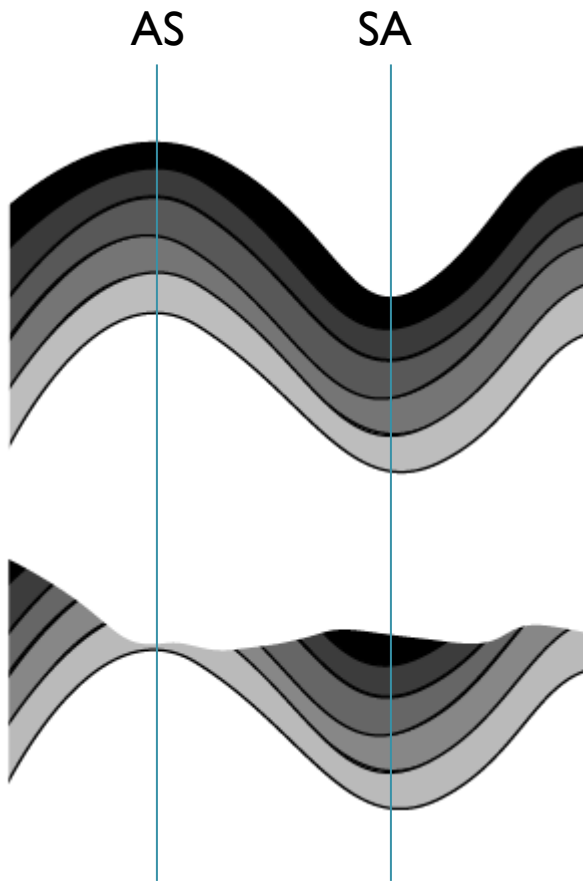


II- Structures tectoniques des domaines ductiles

II-1) Les plis

Aspects géométriques

Polarité inverse

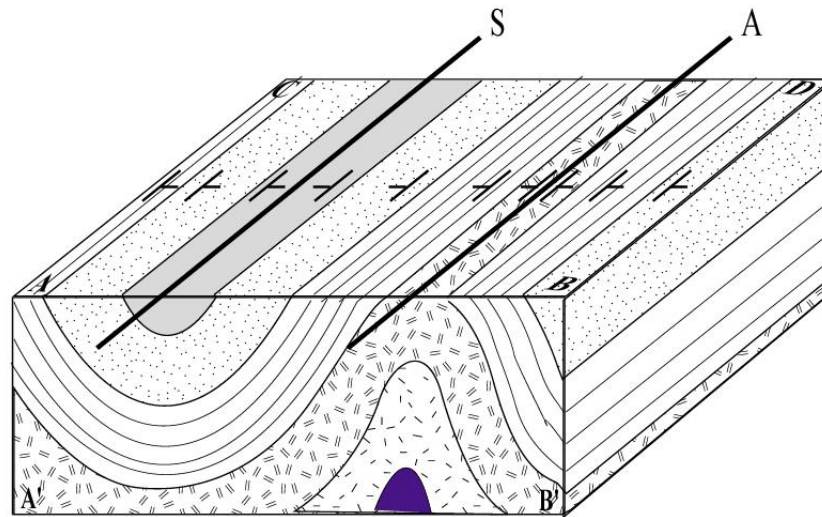
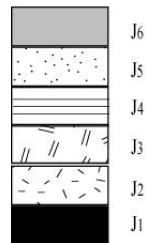
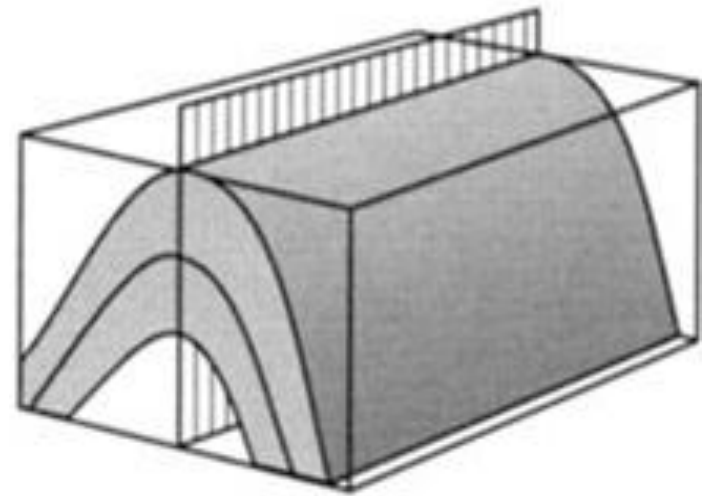
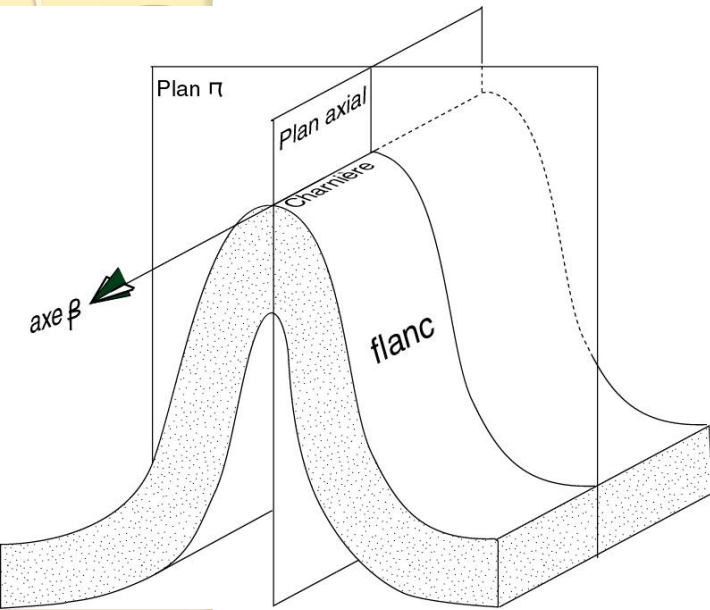


AS: antiforme synclinal
(couches plus récentes au cœur)

SA: synforme anticlinal
(couches plus anciennes au cœur)

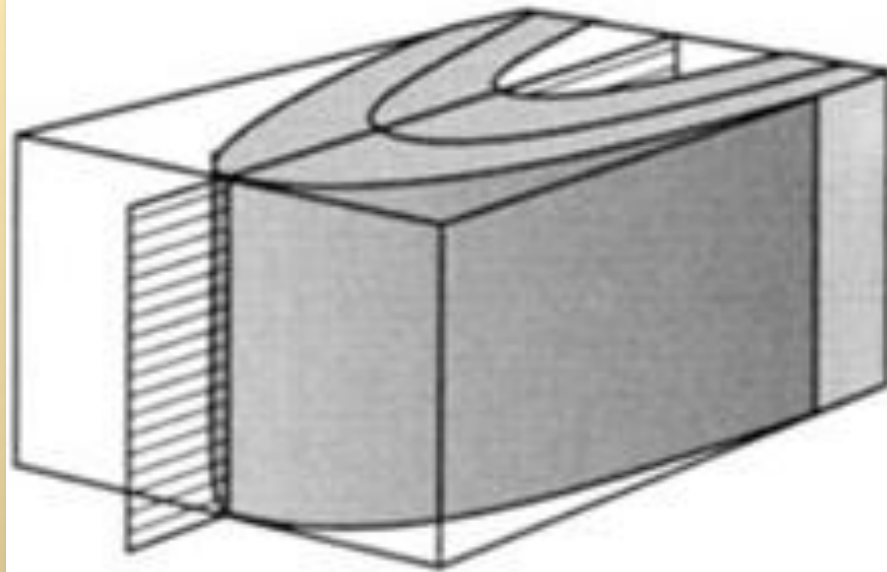
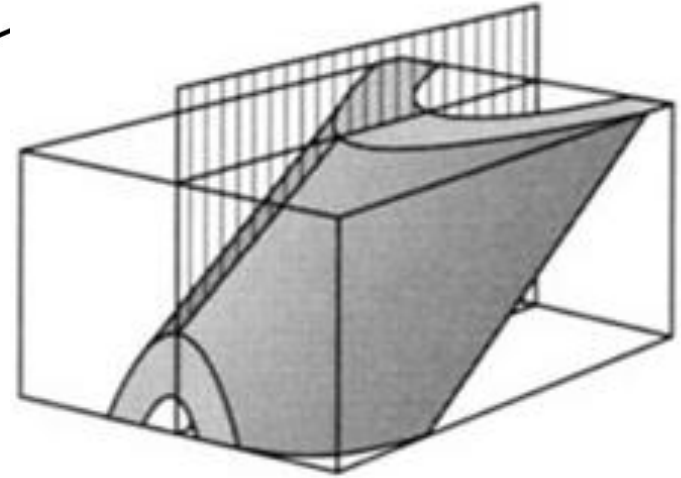
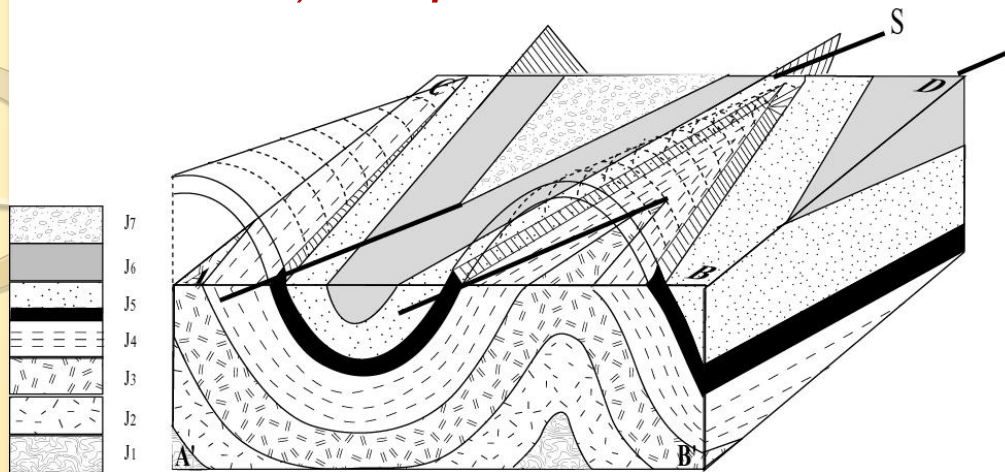
II- Structures tectoniques des domaines ductiles

II-1) Les plis



II - Structures tectoniques des domaines ductiles

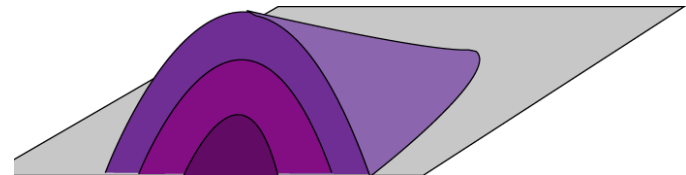
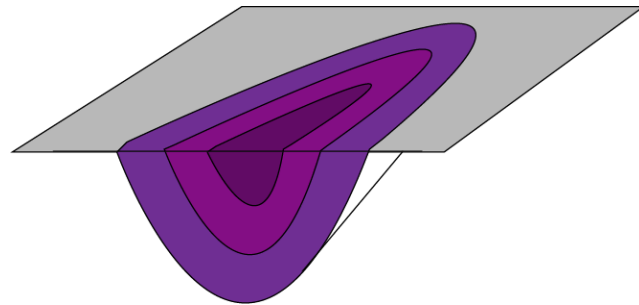
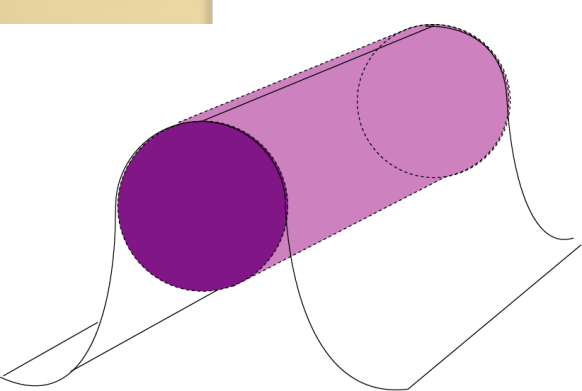
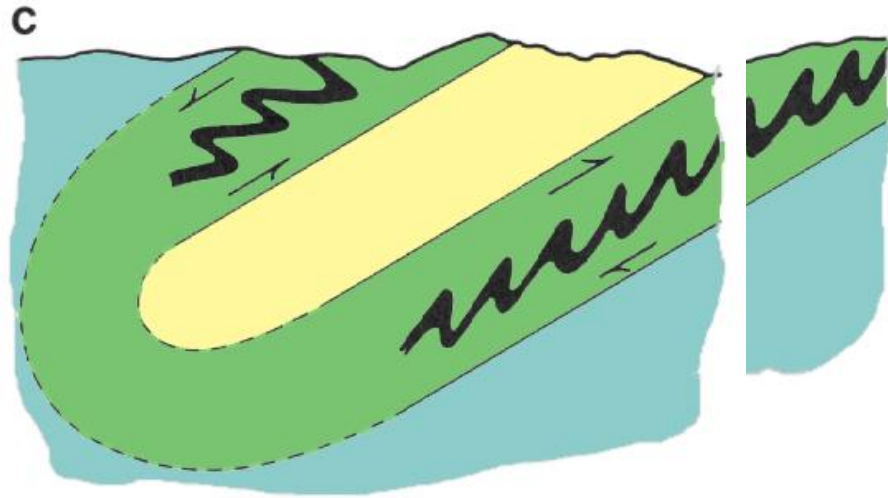
II-1) Les plis



II- Structures tectoniques des domaines ductiles

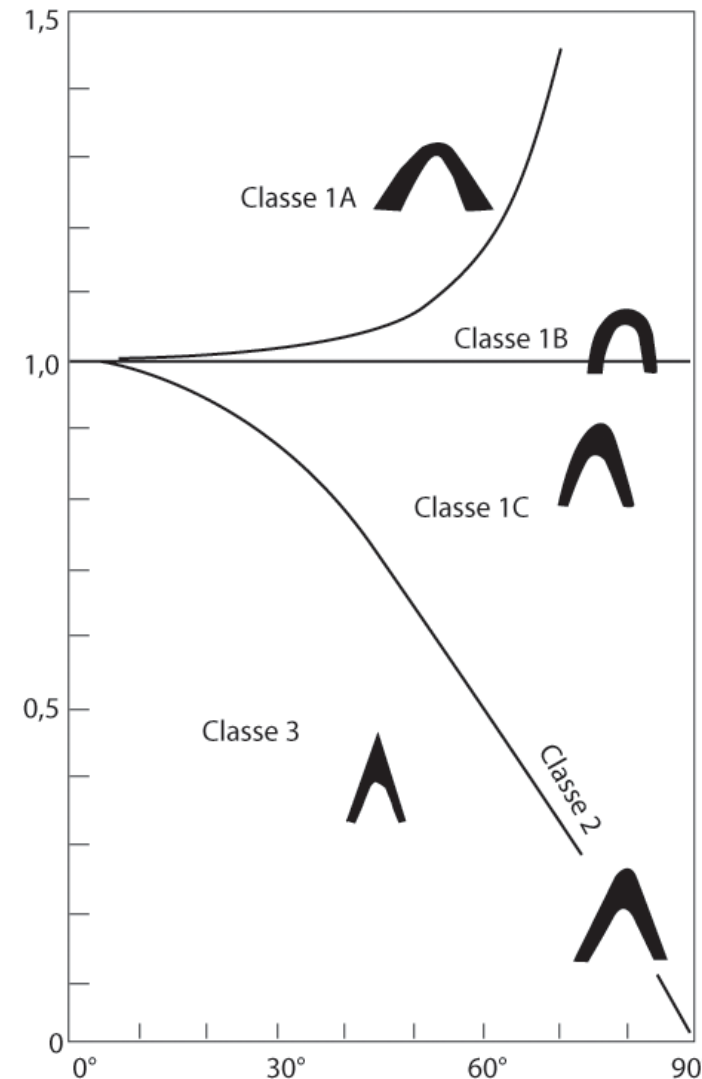
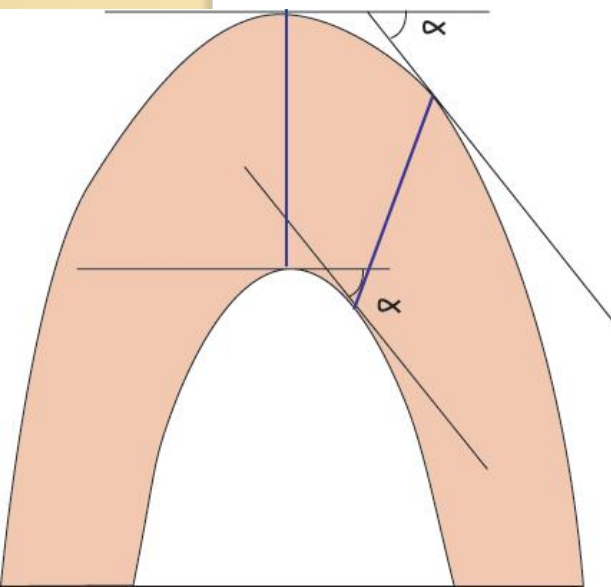
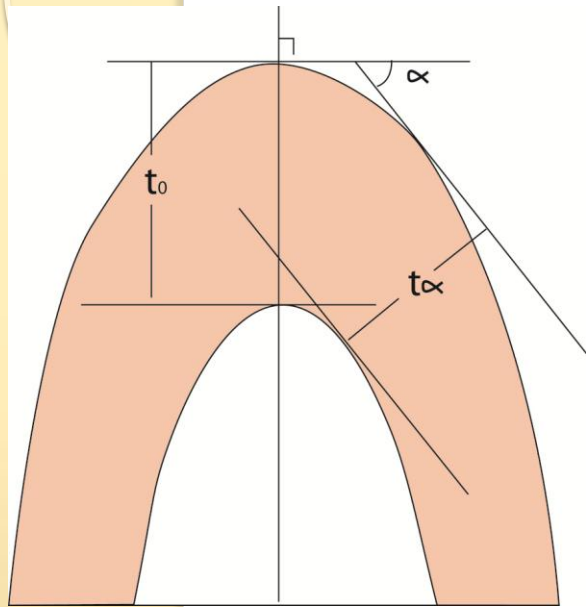
II-1) Les plis

Ordre des plis

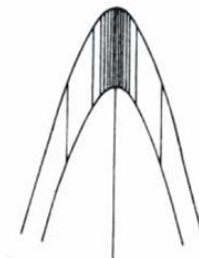
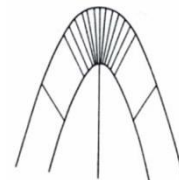
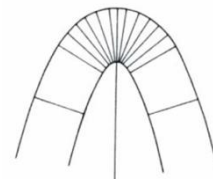
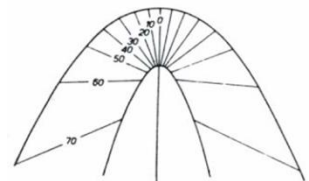


II- Structures tectoniques des domaines ductiles

II-1) Les plis

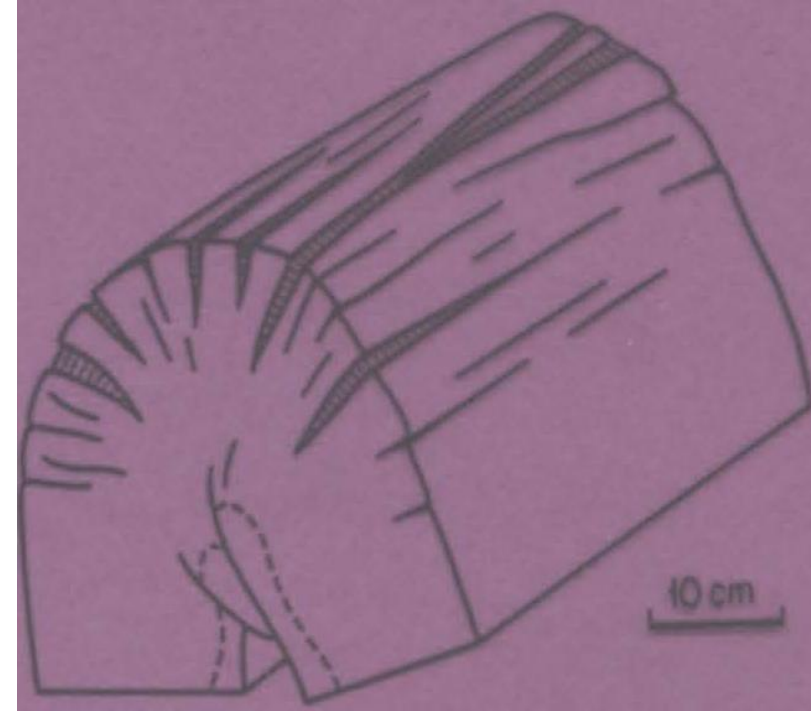
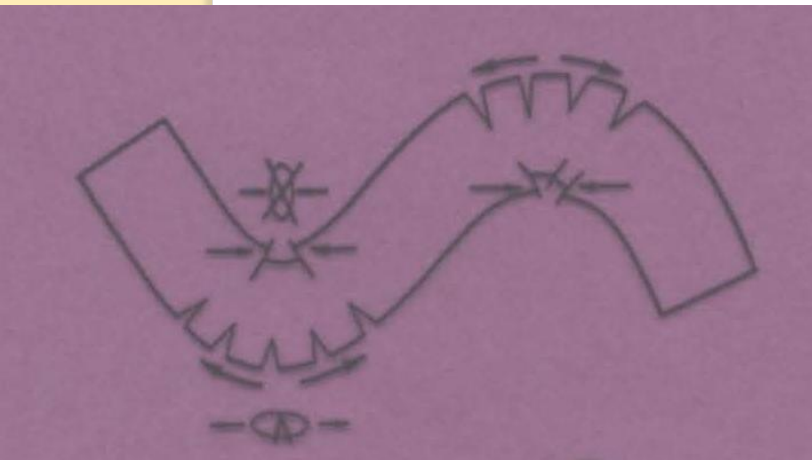
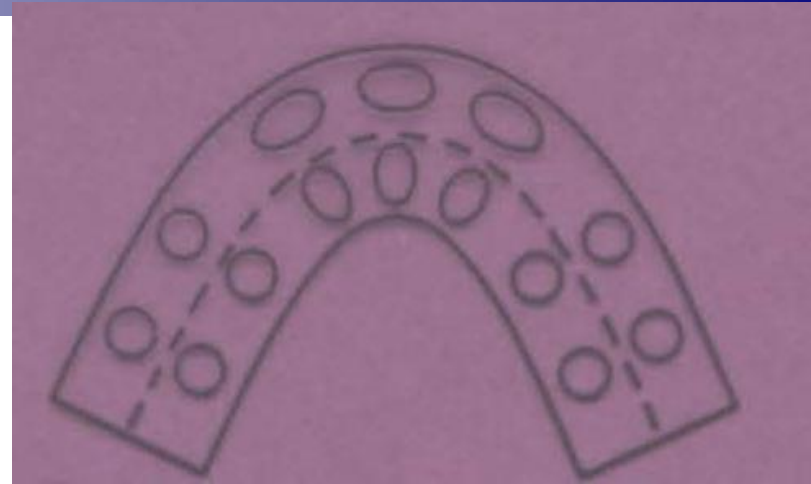
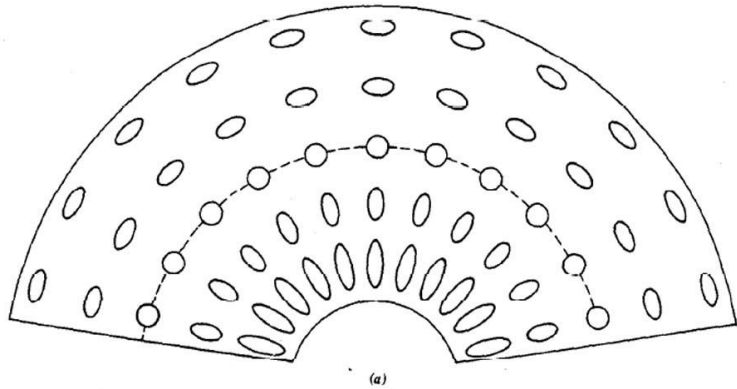


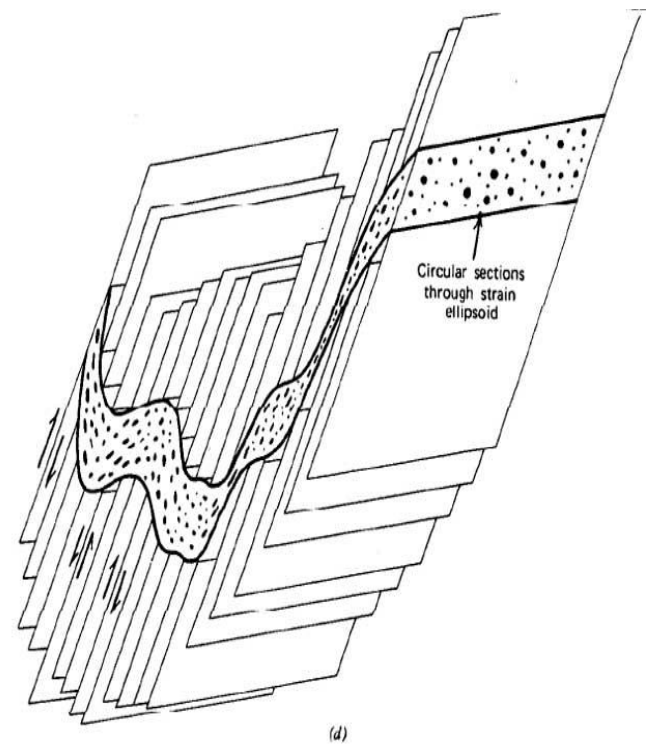
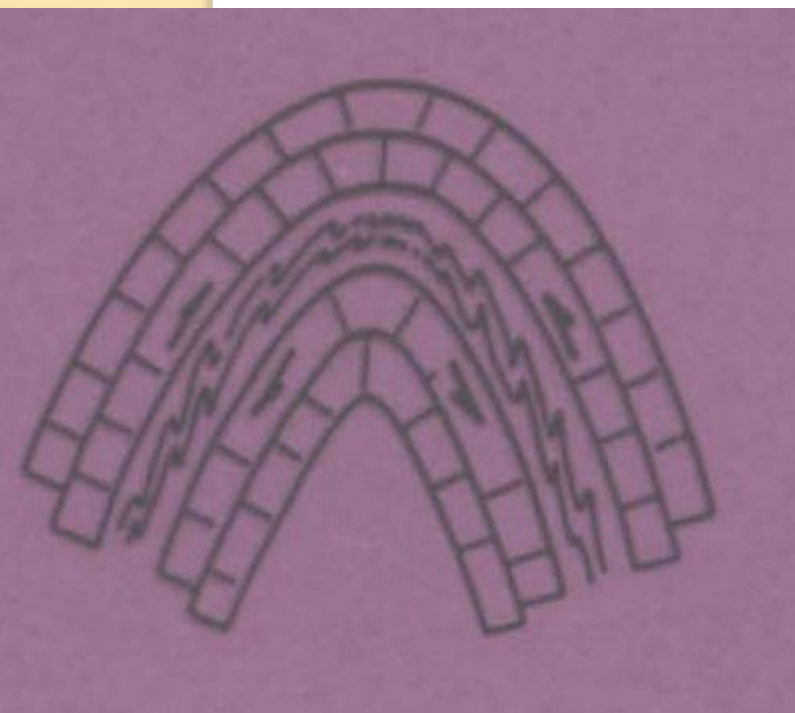
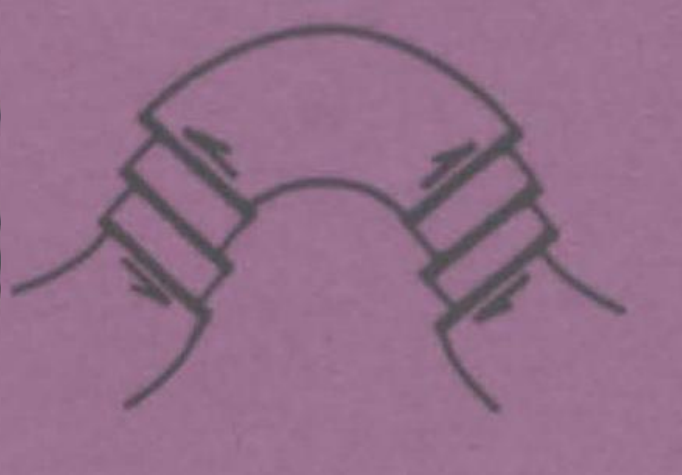
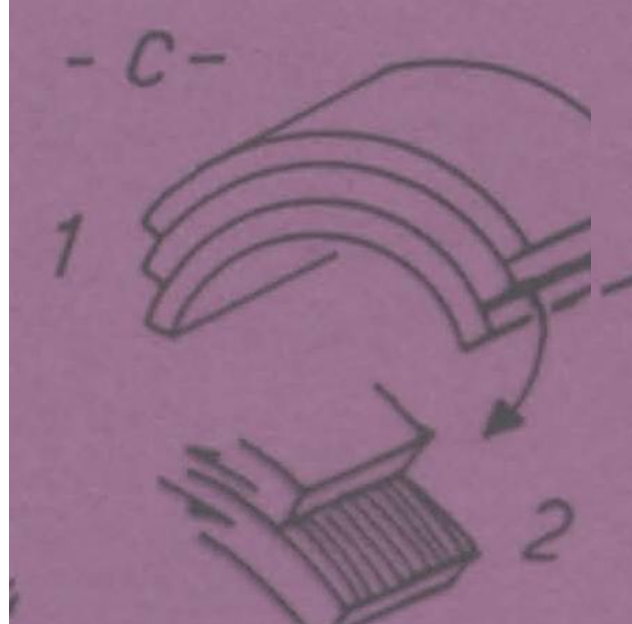
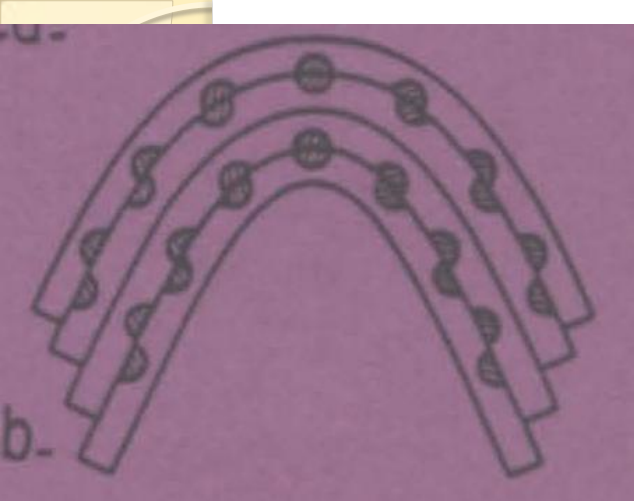
Classe	Isogone	Subclasse	Isogones
1	Convergente	1A	très convergentes
		1B – Pli isopaque	Perpendiculaires aux couches
		1C	peu convergentes
2	Parallèle	Pli semblable Classe 2	Isogones parallèles
3	Divergente	Classe 3	Isogones divergeantes



II- Structures tectoniques des domaines ductiles

II-1) Les plis

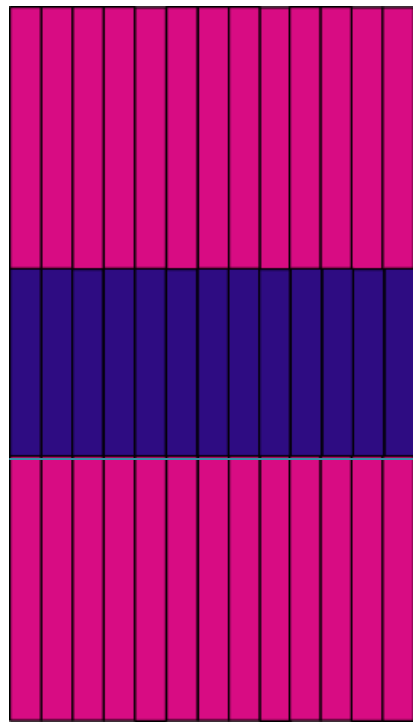




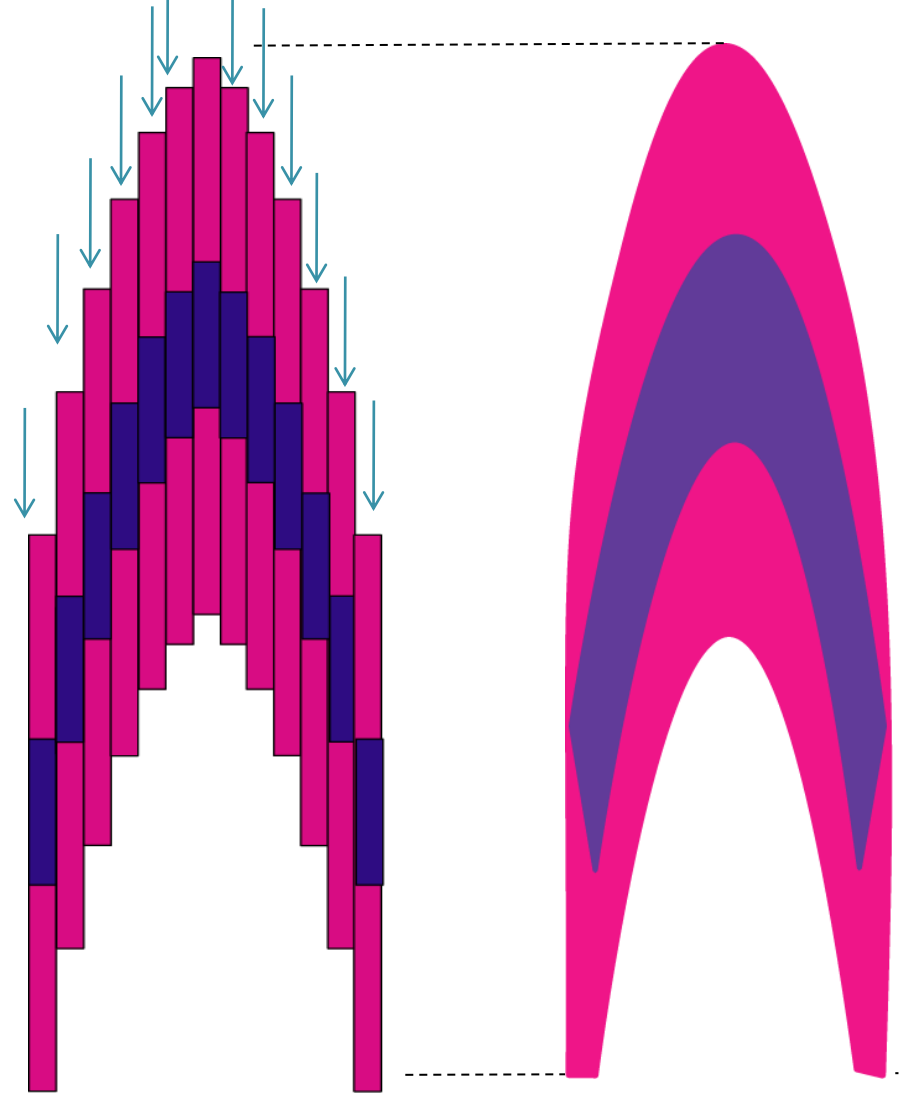
II- Structures tectoniques des domaines ductiles

II-1) Les plis

b) Plissement par cisaillement



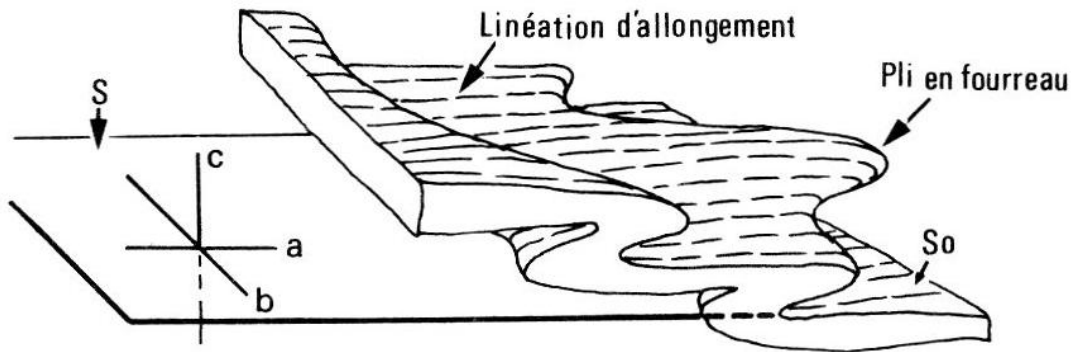
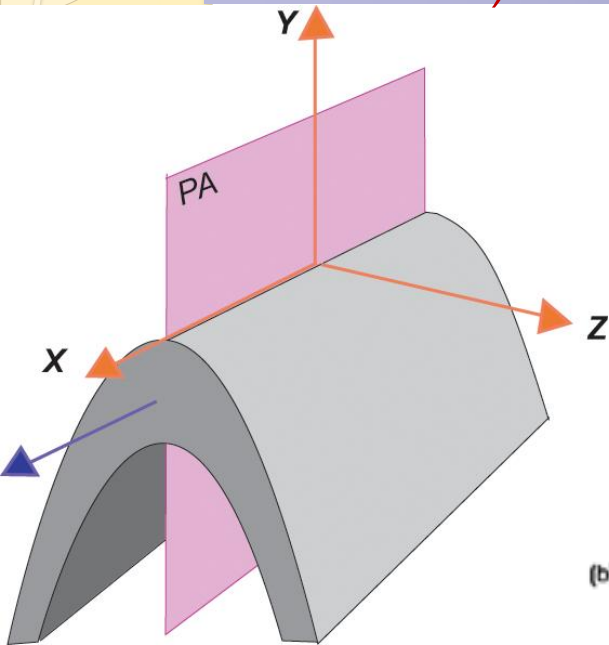
l₀



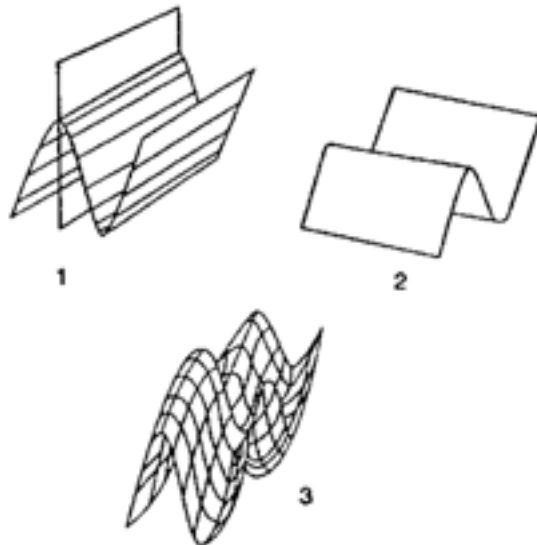
l₀

II- Structures tectoniques des domaines ductiles

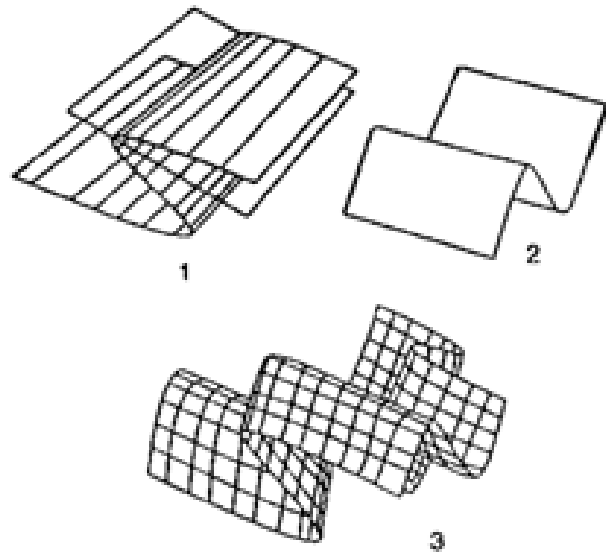
II-1) Les plis



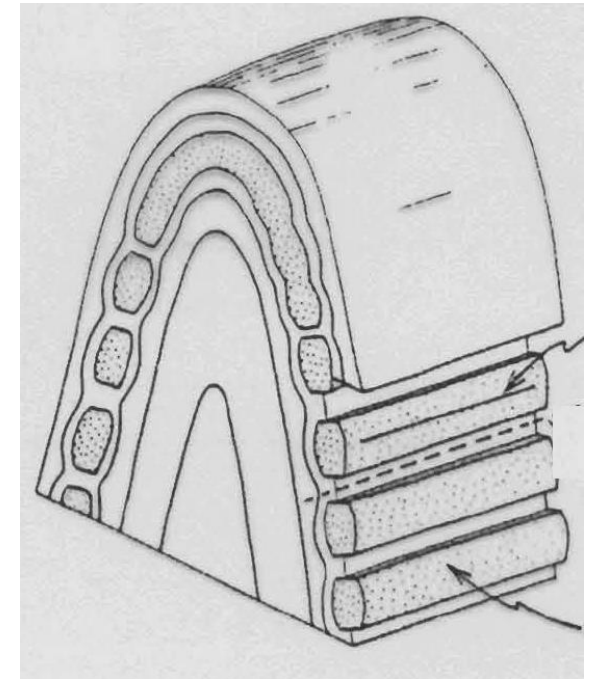
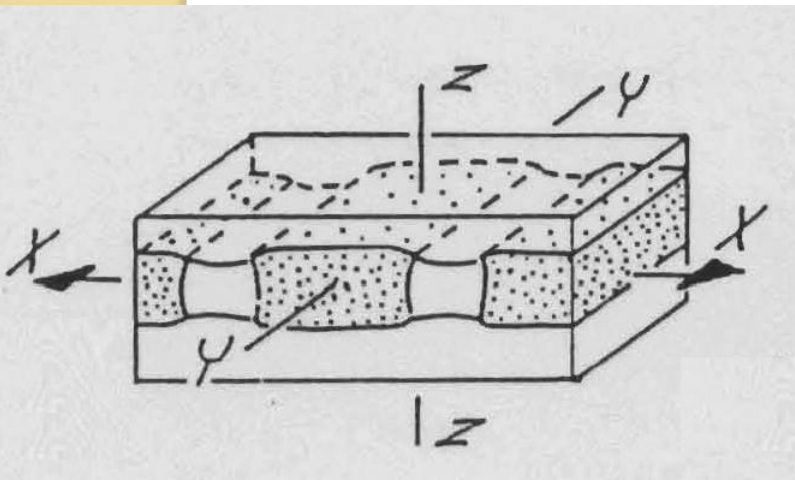
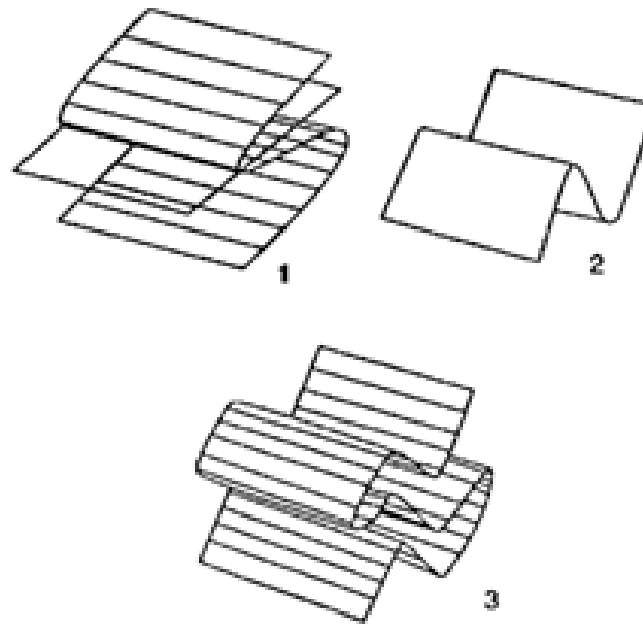
(b) Type 1



(c) Type 2



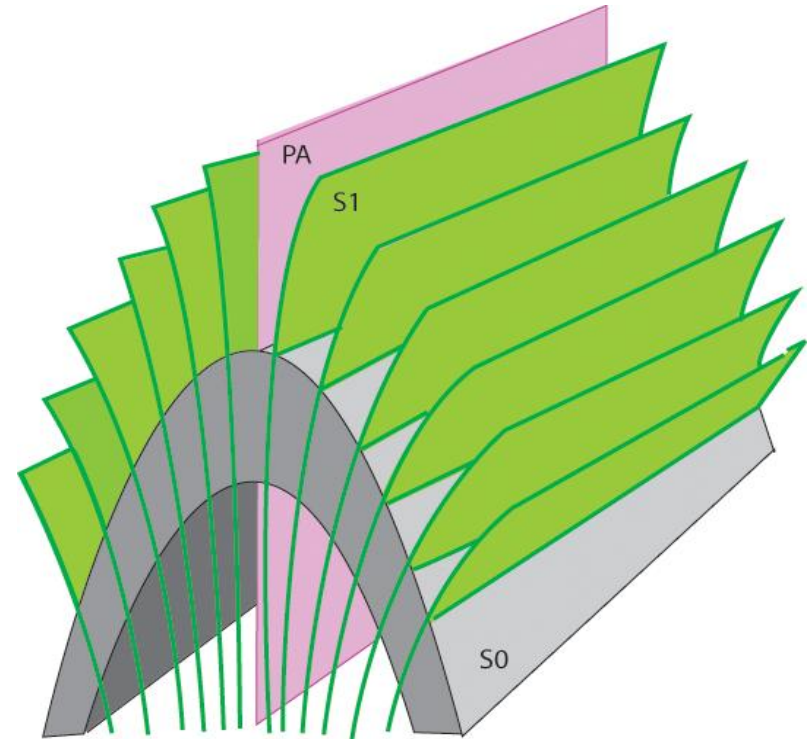
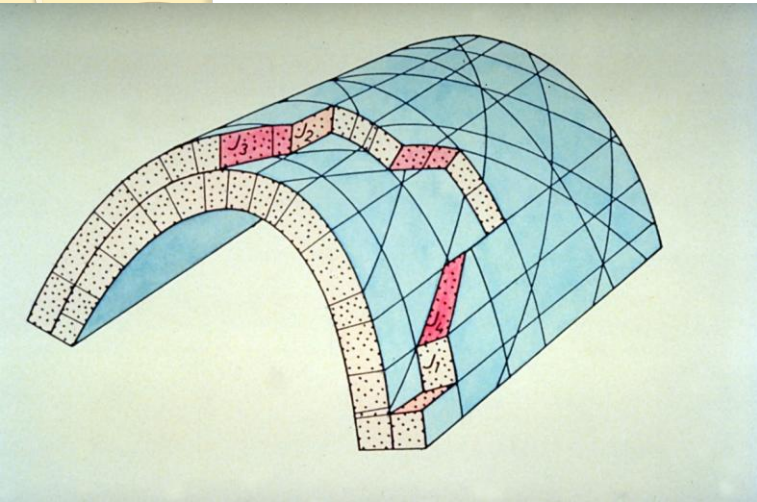
(d) Type 3



Les structures tectoniques souples

III- Structures et microstructures associées aux plis

III-2. Joints et diaclases



Les structures tectoniques souples

III- Structures et microstructures associées aux plis

III-3. Schistosité

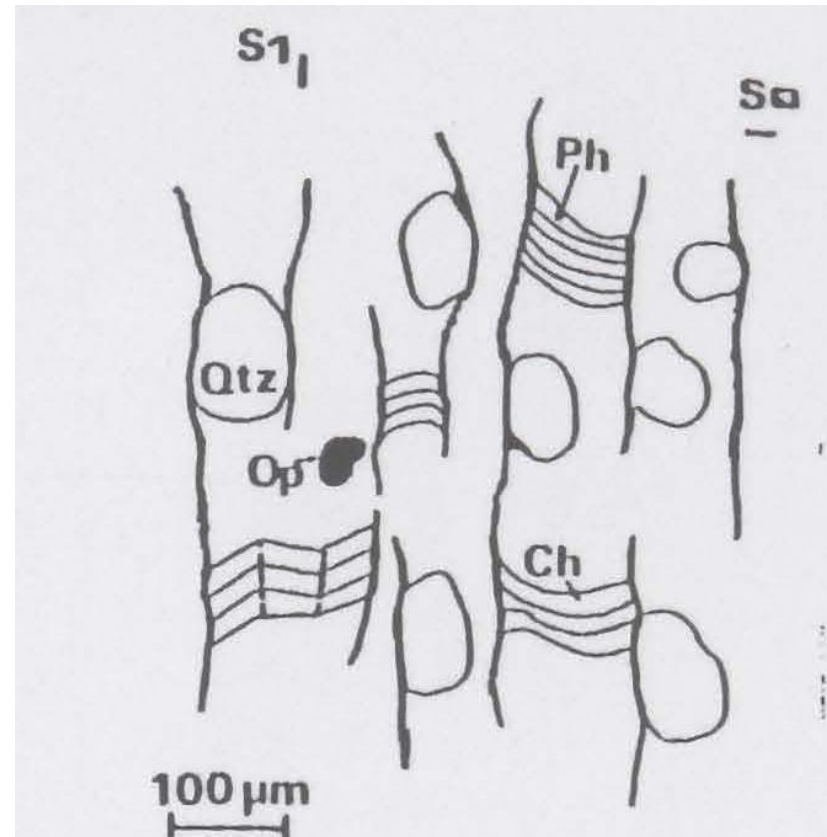
III-3-1. Développement

schistosité dite de fracture :

Elle résulte non pas d'une fracture, mais d'une dissolution.

minces films de minéraux
opaques discontinus,
subparallèles les uns aux autres,
généralement perpendiculaires
au litage sédimentaire et
délimitant des mirolithons.

la schistosité s'accompagne de
réarrangements mécaniques de
la roche



Les structures tectoniques souples

III- Structures et microstructures associées aux plis

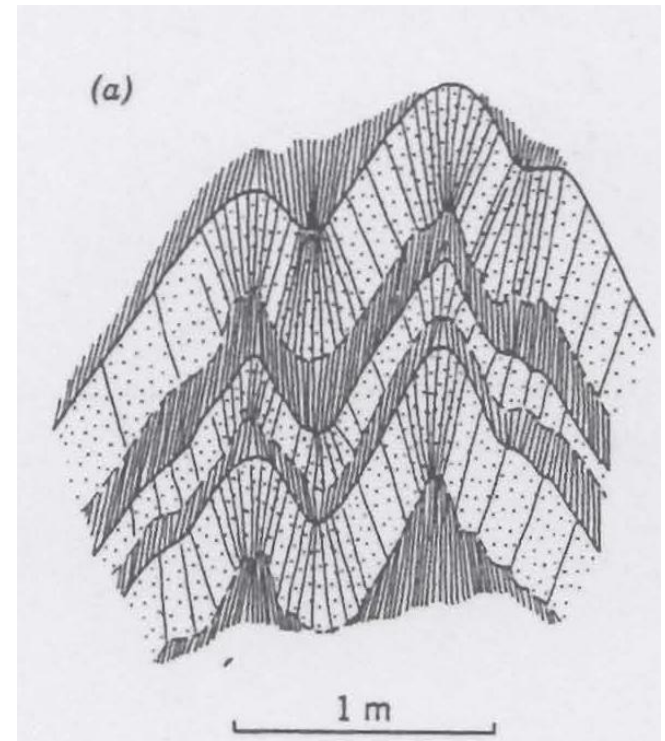
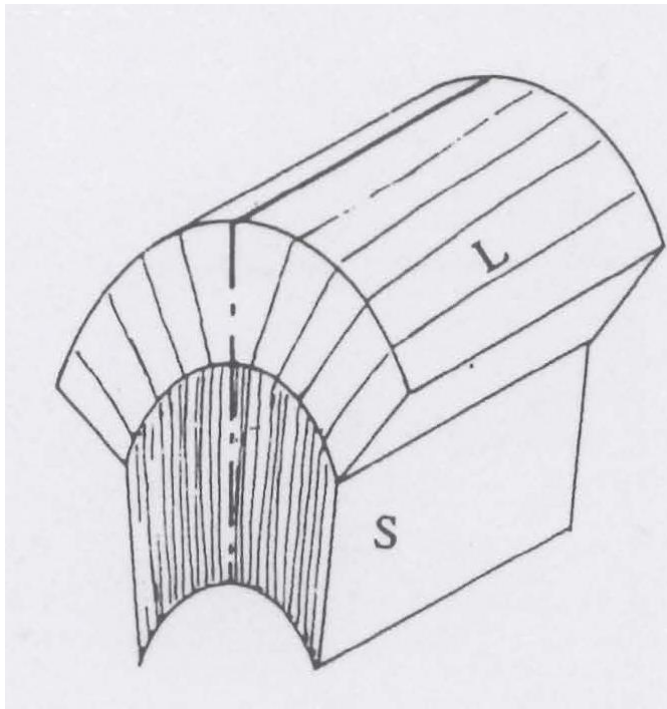
III-3. Schistosité

III-3-1. Développement

schistosité dite de fracture :

La différence de compétence entre les bancs se traduit par des réfractions de la schistosité,

Le débit principal est encore la stratification.



Les structures tectoniques souples

III- Structures et microstructures associées aux plis

III-3. Schistosité

III-3-1. Développement

-schistosité de flux:

ce sont des plans de néoformation cristalline, développés par réduction de la largeur des microlithons.

L'aplatissement, de l'ordre de 50%, s'accompagne d'une extension dans le plan de SI, dans la direction X, matérialisée par l'étirement d'objets antéschisteux (oolites, galets, taches de réduction, etc..).

La roche est un schiste, et le débit majeur tend à être la schistosité.



Les structures tectoniques souples

III- Structures et microstructures associées aux plis

III-3. Schistosité

III-3-1. Développement

foliation :

il n'y a plus de microlithons préservés, les minéraux néoformés sont gros.

Lorsqu'ils sont surtout phylliteux, on parle de micaschistes.



Les structures tectoniques souples

III- Structures et microstructures associées aux plis

III-3. Schistosité

III-3-1. Développement

foliation :



Les structures tectoniques souples

III- Structures et microstructures associées aux plis

III-3. Schistosité

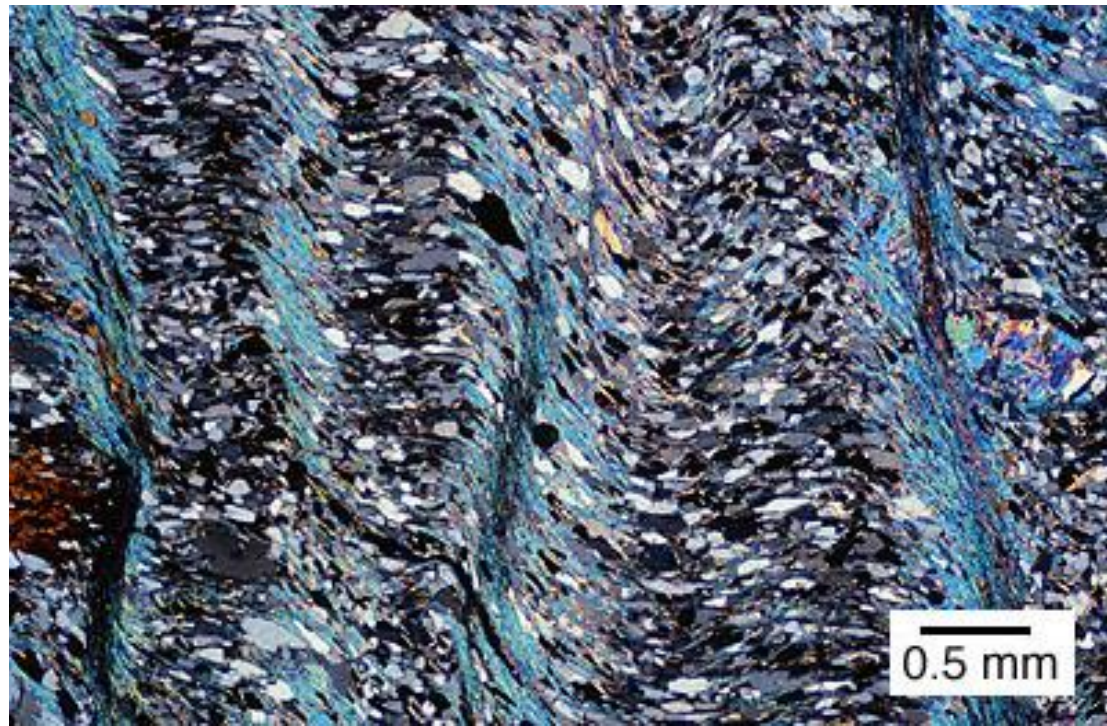
III-3-1. Développement

schistosité de crénulation:

C'est le cas où la roche initiale possède une structure feuilletée (sédimentaire ou tectonique).

A l'intérieur de chaque microlithon, cette structure est crénulée (microplissée).

La crénulation
résulte souvent d'une
seconde phase de
plissement



Les structures tectoniques souples

III- Structures et microstructures associées aux plis

III-3. Schistosité

III-3-4. Rapports S_0/S_1

La disposition relative de S_0 et de S_1 est utilisée pour l'analyse tectonique des ceintures schisteuses : pour la détermination de la vergence tectonique, détermination de la situation dans les ensembles plissés.

